CLAIMS

What is claimed is:

1. A method for data sharing across batch sequential processes and on-line transactional processes in a clustered arrangement of multiple data processing systems, the method comprising:

performing on-line transaction process accesses and batch sequential process accesses on record data; and

utilizing a dual-level locking protocol for the on-line transaction process accesses and batch sequential process accesses to achieve substantially concurrent accessibility to the record data with minimized processing overhead for the batch sequential processes.

2. The method of claim 1 wherein utilizing a dual-level hierarchy further comprises utilizing a first level locking protocol for an on-line transaction process accessing a file.

3. The method of claim 2 wherein utilizing a first level locking protocol further comprises obtaining record locks in a SHARE or EXCLUSIVE state.

4. The method of claim 2 wherein utilizing a dual-level locking protocol further comprises determining if a batch sequential process is accessing a file, and transitioning to a second level locking protocol when a batch sequential process is accessing a file.

5. The method of claim 4 wherein transitioning to a second level locking protocol further comprises obtaining a control area lock in a first state for transaction requests in addition to record locks.

6. The method of claim 5 wherein the first state further comprises a TRANSACTION_SHARED state.

7. The method of claim 6 wherein transitioning to a second level locking protocol further comprises obtaining a control area lock in a second state for the batch sequential process.

8. The method of claim 7 wherein the second state further comprises a BATCH_EXCLUSIVE state.

9. A method for data sharing across batch sequential processes and on-line transactional processes in a clustered arrangement of multiple data processing systems, the method comprising:

obtaining a lock on a control area by a batch sequential process;

reading records from the control area into predetermined buffers of address space for the batch sequential process; and

performing operations on the records in the predetermined buffers.

10. The method of claim 9 wherein performing operations on the records further

2 comprises executing sequential read, update, and delete record requests from the batch

3 sequential process.

1 11. The method of claim 10 wherein updated records are replaced in the

2 predetermined buffers and deleted records are removed from the predetermined buffers.

1 12. The method of claim 11 further comprising transferring control of modified

2 record data to a file management server.

1 13. The method of claim 12 further comprising obtaining an exclusive lock by the

2 file management server on files having modified record data and, creating log records in

3 file management server logs for each log record in the predetermined buffers.

1 14. A system for data sharing across batch sequential processes and on-line

2 transactional processes, the system comprising:

3 a plurality of direct access storage devices (DASDs) for storing record data;

4 a plurality of data processing systems coupled to the plurality of DASDs in a

5 clustered system arrangement, wherein batch sequential process accesses and on-line

6 transaction process accesses occur substantially concurrently to the record data by the

7 plurality of data processing systems through utilization of a dual-level locking protocol for

8 the on-line transaction process accesses and batch sequential process accesses with

9 minimized overhead for the batch sequential process accesses.

1   15. The system of claim 14 wherein the plurality of data processing systems

2   utilize a dual-level locking protocol by utilizing a first level locking protocol for an on-

3   line transaction process accessing a file.

1   16. The system of claim 15 wherein the first level locking protocol further

2   comprises obtaining record locks in a SHARE or EXCLUSIVE state.

1   17. The system of claim 16 wherein the plurality of data processing systems

2   utilize a dual-level locking protocol by determining if a batch sequential process is

3   accessing a file, and transitioning to a second level locking on a protocol when a batch

4   sequential process is accessing a file.

1   18. The system of claim 17 wherein transitioning to a second level locking

2   protocol further comprises obtaining a control area lock in a first state for transaction

3   requests in addition to record locks.

1   19. The system of claim 18 wherein the first state further comprises a

2   TRANSACTION_SHARED state.

1   20. The system of claim 19 wherein transitioning to a second level locking

2   protocol further comprises obtaining a control area lock in a second state for the batch

3   sequential process.

1   21. The system of claim 20 wherein the second state further comprises a

2 BATCH_EXCLUSIVE state.